Claims

1. Method of coding a signal, in particular an audio or speech signal, wherein a codebook comprising k code vectors is provided for vector quantization of a signal vector representing a set of signal values of said signal, performing a codebook search for determining an optimal code vector of said codebook, wherein said codebook search is performed in parallel

   - by dividing said codebook into p codebook groups,
   - by simultaneously determining p optimal group code vectors each of which corresponds to one of said p codebook groups, and
   - by determining said optimal code vector among said p optimal group code vectors.

2. Method according to claim 1, wherein said step of determining said optimal code vector among said p optimal group code vectors comprises evaluating an index of each optimal group code vector uniquely identifying each optimal group code vector within said codebook.

3. Method according to claim 1, wherein said vector quantization is of the shape-gain type.

4. Method according to one of the preceding claims, wherein a comparison of code vectors is performed within said codebook search, wherein said comparison is based on a cross multiplication expression

$$C_t * E_{best} >< E_t * C_{best,}$$

which is based on fixed point operations and leads exactly to the same result as a standardized serial algorithm, wherein C_t is a so-called cross term corresponding to a t-th code vector and C_{best} is the cross term corresponding to a temporarily best code vector, and wherein E_t is a so-called energy term corresponding to said t-th code vector and E_{best} is the energy term corresponding to said temporarily best code vector.

5. Method according to one of the preceding claims, wherein said method is based on a code excited linear prediction algorithm comprising a synthesis section, and wherein elements of a matrix representing a transfer function of at least one filter of said synthesis section, and/or elements of auto-correlation matrices used within said CELP-algorithm and/or further precalculation and postcalculation steps for a/said comparison of code vectors are generated/evaluated in parallel.

6. Method according to claim 1, wherein said codebook comprises pulse code vectors.

7. Method according to claim 1, wherein a processor with configurable hardware and/or with acceleration means specifically designed for said method is used for parallel execution of steps of said method.

8. Method according to claim 7, wherein said processor provides means for simultaneously accessing a plurality of said signal values located in a memory.

9. Method according to claim 1, wherein a standard processor, in particular a digital signal processor, is used for parallel execution of steps of said method, and wherein said steps of said method are optimized regarding calculation means of said standard processor and/or execution time.

10. Processor capable of performing a method according to any of the preceding claims.

11. Coder and decoder, in particular speech and/or audio signal CODEC, capable of performing a method according to claim 1.